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SEQUENCE LISTING

<110> ADLER, JON ELLIOT
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LI, XIADONG
O'CONNELL, SHAWN
STASZEWSKI, LENA

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   50                  55                  60

Phe Ser Ser Asn Gly Leu Leu Trp Ala Leu Ala Met Lys Met Ala Val
65                  70                  75                  80

Glu Glu Ile Asn Asn Lys Ser Asp Leu Leu Pro Gly Leu Arg Leu Gly
                85                  90                  95

Tyr Asp Leu Phe Asp Thr Cys Ser Glu Pro Val Val Ala Met Lys Pro
            100                 105                 110

Ser Leu Met Phe Leu Ala Lys Ala Gly Ser Arg Asp Ile Ala Ala Tyr
        115                 120                 125

Cys Asn Tyr Thr Gln Tyr Gln Pro Arg Val Leu Ala Val Ile Gly Pro
    130                 135                 140

His Ser Ser Glu Leu Ala Met Val Thr Gly Lys Phe Phe Ser Phe Phe
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Leu Met Pro His Tyr Gly Ala Ser Met Glu Leu Leu Ser Ala Arg Glu
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Thr Phe Pro Ser Phe Phe Arg Thr Val Pro Ser Asp Arg Val Gln Leu
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Thr Ala Ala Ala Glu Leu Leu Gln Glu Phe Gly Trp Asn Trp Val Ala
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Ala Leu Gly Ser Asp Asp Glu Tyr Gly Arg Gln Gly Leu Ser Ile Phe
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Ser Ala Leu Ala Ala Ala Arg Gly Ile Cys Ile Ala His Glu Gly Leu
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Val Pro Leu Pro Arg Ala Asp Asp Ser Arg Leu Gly Lys Val Gln Asp
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Val Leu His Gln Val Asn Gln Ser Ser Val Gln Val Val Leu Leu Phe
            260                 265                 270

Ala Ser Val His Ala Ala His Ala Leu Phe Asn Tyr Ser Ile Ser Ser
        275                 280                 285

Arg Leu Ser Pro Lys Val Trp Val Ala Ser Glu Ala Trp Leu Thr Ser
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Asp Leu Val Met Gly Leu Pro Gly Met Ala Gln Met Gly Thr Val Leu
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Gly Glu Arg Glu Gln Gly Leu Glu Glu Asp Val Val Gly Gln Arg Cys
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Pro Gln Cys Asp Cys Ile Thr Leu Gln Asn Val Ser Ala Gly Leu Asn
    370                 375                 380

His His Gln Thr Phe Ser Val Tyr Ala Ala Val Tyr Ser Val Ala Gln
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Ala Leu His Asn Thr Leu Gln Cys Asn Ala Ser Gly Cys Pro Ala Gln
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Asp Pro Val Lys Pro Trp Gln Leu Leu Glu Asn Met Tyr Asn Leu Thr
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Phe His Val Gly Gly Leu Pro Leu Arg Phe Asp Ser Ser Gly Asn Val
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Asp Met Glu Tyr Asp Leu Lys Leu Trp Val Trp Gln Gly Ser Val Pro
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Arg Leu His Asp Val Gly Arg Phe Asn Gly Ser Leu Arg Thr Glu Arg
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Leu Lys Ile Arg Trp His Thr Ser Asp Asn Gln Lys Pro Val Ser Arg
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Cys Ser Arg Gln Cys Gln Glu Gly Gln Val Arg Arg Val Lys Gly Phe
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His Ser Cys Cys Tyr Asp Cys Val Asp Cys Glu Ala Gly Ser Tyr Arg
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Gln Asn Pro Asp Asp Ile Ala Cys Thr Phe Cys Gly Gln Asp Glu Trp
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Ser Pro Glu Arg Ser Thr Arg Cys Phe Arg Arg Arg Ser Arg Phe Leu
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Ala Trp Gly Glu Pro Ala Val Leu Leu Leu Leu Leu Leu Leu Ser Leu
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Ala Leu Gly Leu Val Leu Ala Ala Leu Gly Leu Phe Val His His Arg
            580                 585                 590

Asp Ser Pro Leu Val Gln Ala Ser Gly Gly Pro Leu Ala Cys Phe Gly
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Leu Val Cys Leu Gly Leu Val Cys Leu Ser Val Leu Leu Phe Pro Gly
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Pro Leu Thr Gly Cys Leu Ser Thr Leu Phe Leu Gln Ala Ala Glu Ile
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Phe Val Glu Ser Glu Leu Pro Leu Ser Trp Ala Asp Arg Leu Ser Gly
            660                 665                 670

Cys Leu Arg Gly Pro Trp Ala Trp Leu Val Val Leu Leu Ala Met Leu
        675                 680                 685

Val Glu Val Ala Leu Cys Thr Trp Tyr Leu Val Ala Phe Pro Pro Glu
    690                 695                 700

Val Val Thr Asp Trp His Met Leu Pro Thr Glu Ala Leu Val His Cys
705                 710                 715                 720

Arg Thr Arg Ser Trp Val Ser Phe Gly Leu Ala His Ala Thr Asn Ala
                725                 730                 735

Thr Leu Ala Phe Leu Cys Phe Leu Gly Thr Phe Leu Val Arg Ser Gln
            740                 745                 750

Pro Gly Cys Tyr Asn Arg Ala Arg Gly Leu Thr Phe Ala Met Leu Ala
        755                 760                 765

Tyr Phe Ile Thr Trp Val Ser Phe Val Pro Leu Leu Ala Asn Val Gln
    770                 775                 780

Val Val Leu Arg Pro Ala Val Gln Met Gly Ala Leu Leu Leu Cys Val
785                 790                 795                 800

Leu Gly Ile Leu Ala Ala Phe His Leu Pro Arg Cys Tyr Leu Leu Met
                805                 810                 815

Arg Gln Pro Gly Leu Asn Thr Pro Glu Phe Phe Leu Gly Gly Gly Pro
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Phe Cys Leu Ser Val Leu Leu Phe Pro Gly Arg Pro Ser Ser Ala Ser
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Cys Leu Ala Gln Gln Pro Met Ala His Leu Pro Leu Thr Gly Cys Leu
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Ser Thr Leu Phe Leu Gln Ala Ala Glu Thr Phe Val Glu Ser Glu Leu
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Pro Leu Ser Trp Ala Asn Trp Leu Cys Ser Tyr Leu Arg Asp Ser Gly
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Leu Leu Val Val Leu Leu Ala Thr Phe Val Glu Ala Ala Leu Cys Ala
        115                 120                 125

Trp Tyr Leu Thr Ala Ser Pro Glu Val Val Thr Asp Trp Ser Val Leu
    130                 135                 140

Pro Thr Glu Val Leu Glu His Cys His Val Arg Ser Trp Val Asn Leu
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Cys Leu Ala Gln Gln Pro Met Ala His Leu Pro Leu Thr Gly Cys Leu
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<211> 2526
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<213> Homo sapiens

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<211> 841
<212> PRT
<213> Homo sapiens

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Cys Cys Trp Ala Phe Ala Cys His Ser Thr Glu Ser Ser Pro Asp Phe
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Thr Leu Pro Gly Asp Tyr Leu Leu Ala Gly Leu Phe Pro Leu His Ser
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Gly Cys Leu Gln Val Arg His Arg Pro Glu Val Thr Leu Cys Asp Arg
      50                  55                  60

Ser Cys Ser Phe Asn Glu His Gly Tyr His Leu Phe Gln Ala Met Arg
 65                  70                  75                  80

Leu Gly Val Glu Glu Ile Asn Asn Ser Thr Ala Leu Leu Pro Asn Ile
                 85                  90                  95

Thr Leu Gly Tyr Gln Leu Tyr Asp Val Cys Ser Asp Ser Ala Asn Val
            100                 105                 110

Tyr Ala Thr Leu Arg Val Leu Ser Leu Pro Gly Gln His His Ile Glu
        115                 120                 125

Leu Gln Gly Asp Leu Leu His Tyr Ser Pro Thr Val Leu Ala Val Ile
    130                 135                 140

Gly Pro Asp Ser Thr Asn Arg Ala Ala Thr Thr Ala Ala Leu Leu Ser
145                 150                 155                 160

Pro Phe Leu Val Pro Met Ile Ser Tyr Ala Ala Ser Ser Glu Thr Leu
                165                 170                 175

Ser Val Lys Arg Gln Tyr Pro Ser Phe Leu Arg Thr Ile Pro Asn Asp
            180                 185                 190

Lys Tyr Gln Val Glu Thr Met Val Leu Leu Leu Gln Lys Phe Gly Trp
        195                 200                 205

Thr Trp Ile Ser Leu Val Gly Ser Ser Asp Asp Tyr Gly Gln Leu Gly
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Val Gln Ala Leu Glu Asn Gln Ala Thr Gly Gln Gly Ile Cys Ile Ala
225                 230                 235                 240

Phe Lys Asp Ile Met Pro Phe Ser Ala Gln Val Gly Asp Glu Arg Met
                245                 250                 255

Gln Cys Leu Met Arg His Leu Ala Gln Ala Gly Ala Thr Val Val Val
            260                 265                 270

Val Phe Ser Ser Arg Gln Leu Ala Arg Val Phe Phe Glu Ser Val Val
        275                 280                 285

Leu Thr Asn Leu Thr Gly Lys Val Trp Val Ala Ser Glu Ala Trp Ala
    290                 295                 300

Leu Ser Arg His Ile Thr Gly Val Pro Gly Ile Gln Arg Ile Gly Met
305                 310                 315                 320

Val Leu Gly Val Ala Ile Gln Lys Arg Ala Val Pro Gly Leu Lys Ala
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Phe Glu Glu Ala Tyr Ala Arg Ala Asp Lys Lys Ala Pro Arg Pro Cys
            340                 345                 350

His Lys Gly Ser Trp Cys Ser Ser Asn Gln Leu Cys Arg Glu Cys Gln
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Ala Phe Met Ala His Thr Met Pro Lys Leu Lys Ala Phe Ser Met Ser
    370                 375                 380

Ser Ala Tyr Asn Ala Tyr Arg Ala Val Tyr Ala Val Ala His Gly Leu
385                 390                 395                 400

His Gln Leu Leu Gly Cys Ala Ser Gly Ala Cys Ser Arg Gly Arg Val
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Tyr Pro Trp Gln Leu Leu Glu Gln Ile His Lys Val His Phe Leu Leu
            420                 425                 430

His Lys Asp Thr Val Ala Phe Asn Asp Asn Arg Asp Pro Leu Ser Ser
        435                 440                 445

Tyr Asn Ile Ile Ala Trp Asp Trp Asn Gly Pro Lys Trp Thr Phe Thr
    450                 455                 460

Val Leu Gly Ser Ser Thr Trp Ser Pro Val Gln Leu Asn Ile Asn Glu
465                 470                 475                 480

Thr Lys Ile Gln Trp His Gly Lys Asp Asn Gln Val Pro Lys Ser Val
                485                 490                 495

Cys Ser Ser Asp Cys Leu Glu Gly His Gln Arg Val Val Thr Gly Phe
            500                 505                 510

His His Cys Cys Phe Glu Cys Val Pro Cys Gly Ala Gly Thr Phe Leu
        515                 520                 525

Asn Lys Ser Asp Leu Tyr Arg Cys Gln Pro Cys Gly Lys Glu Glu Trp
    530                 535                 540

Ala Pro Glu Gly Ser Gln Thr Cys Phe Pro Arg Thr Val Val Phe Leu
545                 550                 555                 560

Ala Leu Arg Glu His Thr Ser Trp Val Leu Leu Ala Ala Asn Thr Leu
                565                 570                 575

Leu Leu Leu Leu Leu Leu Gly Thr Ala Gly Leu Phe Ala Trp His Leu
            580                 585                 590

Asp Thr Pro Val Val Arg Ser Ala Gly Gly Arg Leu Cys Phe Leu Met
        595                 600                 605

Leu Gly Ser Leu Ala Ala Gly Ser Gly Ser Leu Tyr Gly Phe Phe Gly
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Glu Pro Thr Arg Pro Ala Cys Leu Leu Arg Gln Ala Leu Phe Ala Leu
625                 630                 635                 640
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Gly Phe Thr Ile Phe Leu Ser Cys Leu Thr Val Arg Ser Phe Gln Leu
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Ile Ile Ile Phe Lys Phe Ser Thr Lys Val Pro Thr Phe Tyr His Ala
            660                 665                 670

Trp Val Gln Asn His Gly Ala Gly Leu Phe Val Met Ile Ser Ser Ala
        675                 680                 685

Ala Gln Leu Leu Ile Cys Leu Thr Trp Leu Val Val Trp Thr Pro Leu
    690                 695                 700

Pro Ala Arg Glu Tyr Gln Arg Phe Pro His Leu Val Met Leu Glu Cys
705                 710                 715                 720

Thr Glu Thr Asn Ser Leu Gly Phe Ile Leu Ala Phe Leu Tyr Asn Gly
                725                 730                 735

Leu Leu Ser Ile Ser Ala Phe Ala Cys Ser Tyr Leu Gly Lys Asp Leu
            740                 745                 750

Pro Glu Asn Tyr Asn Glu Ala Lys Cys Val Thr Phe Ser Leu Leu Phe
        755                 760                 765

Asn Phe Val Ser Trp Ile Ala Phe Phe Thr Thr Ala Ser Val Tyr Asp
    770                 775                 780

Gly Lys Tyr Leu Pro Ala Ala Asn Met Met Ala Gly Leu Ser Ser Leu
785                 790                 795                 800

Ser Ser Gly Phe Gly Gly Tyr Phe Leu Pro Lys Cys Tyr Val Ile Leu
                805                 810                 815

Cys Arg Pro Asp Leu Asn Ser Thr Glu His Phe Gln Ala Ser Ile Gln
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Asp Tyr Thr Arg Arg Cys Gly Ser Thr
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<211> 14
<212> PRT
<213> Artificial Sequence

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<223> Arg, Gln or Pro

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<223> Arg or Thr

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<223> Ser, Pro or Val

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<223> Val, Glu, Arg, Lys or Thr

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<223> Ala or Glu

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<223> Description of Artificial Sequence: Consensus sequence

<400> 18
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<210> 19
<211> 15
<212> PRT
<213> Artificial Sequence

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<223> Glu, Gly or Thr

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<210> 20
<211> 3563
<212> DNA
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